

REMARKS

Claims 52 through 54 are currently pending in the application.

This amendment is in response to the Office Action dated February 28, 2003.

**Abstract**

The Abstract was objected to by the Examiner for proper language and format. Applicants have amended the Abstract to clarify the embodiments of the presently claimed invention and to conform to the language requirements of M.P.E.P. § 608.01 (b). Applicants respectfully request withdrawal of the objection to the Abstract.

**35 U.S.C. § 102(b) Anticipation Rejections**

Claim 52 is rejected under 35 U.S.C. § 102(e) as being anticipated by Sinclair (U.S. Patent 5,984,694). Applicants respectfully traverse this rejection as hereinafter set forth.

Applicants submit that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 UWPQ2d 1051, 1053 (Fed Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants respectfully submit that Applicants' claims are not anticipated by Sinclair because Sinclair does not, expressly or inherently, teach every element of Applicants' claims. In particular, Sinclair does not teach "forming a contact body from a semiconductive material configured to be electrically conductive."

It is asserted in the Office Action that Sinclair discloses a "semiconductive material contact body (14), a contact head (70), joined package (Fig. 10)." No elements of Figure 10 are labeled with the number 14. Possibly, such an assertion is referring to drawing Figure 1a, an element of which, a semiconductor device, is labeled with a number 14. The semiconductor device, the only element of Figure 1a, and indeed the entire reference, which is formed from a "semi-conductive material," cannot be fairly asserted to be a "contact body" of the claimed invention. Applicants' disclosure makes it clear that the contact body, optionally attached to a

“contact head,” receives contact components of semiconductor devices. Specification, pg. 1, lines 6-9. All of Applicants’ figures depict contacts which are designed with anticipation of a purely temporary association with the conductive elements of a semiconductor device. Also, the text of Applicants’ disclosure is directed towards a device for the convenient testing of semiconductor devices. Page 1, lines 5-9, lines 13-30; page3, lines 5-11. This context of “testing” means that a “contact body” must be able to undergo the reversible electrical interposition between a testing device and a tested device. Furthermore, the connection must be conveniently reversible.

At best drawing Figure 1a of Sinclair, in contrast, describes a semiconductor device which bears permanently attached connective elements. More specifically, even if one of the connective elements is considered to be a “contact head,” the semiconductor device could not be a “contact body” because its electrical contact with any other device is through remaining connective elements, to which it is permanently attached.

Instead of the above, Applicant submits that the Office Action may be referring to the element 84 in drawing Figure 10 as the contact body. However the specification of Sinclair describes nothing about this element being made of a semiconductive material, as Applicants’ claims would require. It is referred to simply as a “ball lead.” It would be apparent to one skilled in the art that ball leads are not made of semiconductive materials, but instead, are generally made of metals which can be melted or otherwise conveniently fashioned into a ball shape. Applicants thus respectfully submit that Sinclair does not and cannot describe the claimed second element of claim 52.

Claim 54 is allowable as depending, either directly or indirectly, from allowable claim 52.

### **35 U.S.C. § 103(a) Rejection**

Rejection Based on U.S. Patent 5,984,694 to Sinclair in view of U.S. Patent 5,283,459 to Hirano et al. and further in view of U.S. Patent 5,173,055 to Grabbe

Claims 53 and 54 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sinclair (U.S. Patent 5,984,694) in view of Hirano et al. (U.S. Patent 5,283,459) and further in view of Grabbe (U.S. Patent 5,173,055).

Applicants submit that:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference) or references when combined must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Applicants respectfully submit that a *prima facie* case of obviousness under 35 U.S.C. §103 has not been established and cannot be established regarding the claimed invention because there is not suggestion for any combination of the cited prior art and because any combination of the cited prior art fails to teach or suggest all the claim limitations of the claimed invention.

There is no suggestion in any of the references to combine the "contact head/contact body" device of Sinclair with the silicon etching of Hirano and the stamping of metal elements of Grabbe. Furthermore, there is no suggestion in the knowledge available to one skilled in the art to do so.

The combination of Sinclair with Hirano and Grabbe also fails to teach every element of Applicants' claims. On page 4 of the Office Action, it is asserted that "Hirano discloses etching silicon to form a contact body (16 and 17)." Applicant respectfully submits that Hirano does not teach the formation of "contact bodies." As illustrated in drawing Figure 5 and Figures 6A through 6D of Hirano do demonstrate a method for forming a device which involves the etching of a semiconducting material. However, the etching does not produce contact bodies. (Elements 16 and 17, which are referred to in the Office Action as "contact bodies," are, in fact, voids. Applicant thus presumes that the Office Action is referring to the portions 11 of the semiconductor substrate, which remain after etching, as "contact bodies.")

As explained above, contact bodies are designed for temporary electrical interposition between a semiconductor device to be tested and a testing device, while one end is, optionally, permanently attached to a contact head. Such an interposition is conveniently undone. However, it can be seen from Figures 4, 5 and 6A through 6D that the separated chunks of semiconductor

substrate of Hirano which are produced by etching do not function as conveniently detachable, temporary electrical conduits between devices. Thus, the only element of Applicants' claims taught by Hirano is the etching of silicon, not the etching of silicon to form contact bodies, as would be required by Applicants' claims.

Claims 56 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinclair in view of Hirano and in further view of Grabbe. Applicant respectfully submits that no *prima facie* case of obviousness under 35 U.S.C. § 103 has been established regarding the claimed invention because the combination fails to teach every element of Applicants' claims. In particular, Grabbe fails to teach the formation of a "contact head."

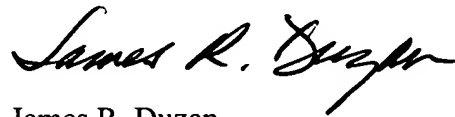
The claims require that "said step of forming a contact head comprises stamping a metal element." It is clear from Applicants' specification that a "contact head" is attached to a contact body, which is itself structurally distinct from other contact bodies, as well as electrically distinct from other contact bodies. Figures 1, 8 through 12F and 15C. For purposes of clarity, the meaning of "structurally distinct," as used here, is intended to encompass at least two cases. The first is that in which the contact bodies can undergo a range of motion with respect to one another, regardless of the type of structural interconnection (Figure 1, 8 through 12F). The second case is that in which the individual contacts are defined, but structurally interconnected and immobilized with respect to each other by bridges of material. The bridges of material can be made of contact body material or other material (Figure 15C), as long as the contact bodies are not electrically connected. See drawing Figures 13H, 14C and 15C.

Figures 1 through 11 of Grabbe, in contrast to Applicants' claims, depict multiple metal structures attached to a single semiconductor device. The metal structures are not structurally interconnected, (see Figure 5 in which the connecting material is removed) and thus would have to be considered as multiple "contact heads" if the term were applicable at all. However, Applicant respectfully submits that because the multiple metal structures are attached to a single piece of semiconductive material, the situation is equivalent to one in which any "contact bodies" are not electrically distinct. Contact bodies are inherently electrically distinct. See final product drawings 13H, 14C and 15C. Shorts between contacts would reduce the use of separate contacts to pointlessness. Thus, each metal structure is not attached to a contact body, and thus the metal

structures are not contact heads. Thus the combination of references fails to teach the formation of a contact head to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed invention.

Applicant respectfully submits that claims 52 through 54 are allowable over the cited prior art. The Abstract has been amended as requested to only cite the embodiment of the invention set forth in claims 52 through 54 of the application. Applicant requests the allowance of claims 52 through 54, and the case is passed for issue.

Respectfully submitted,



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